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ABSTRACT OF THE DISCLOSURE

A system and method of hiding the source Internet Protocol (IP) address of an originating and/or terminating terminal during media flow by routing IP packets through an enhanced Media Resource Function (MRF) that removes the source address and substitutes an alias address. The MRF performs an address translation by mapping the source address to an IP address for the MRF and then forwarding the packets to the terminating terminal. The terminating terminal sees the MRF address as the source address for the packets. Packets returned in the opposite direction are addressed to the alias address at the MRF. The MRF then substitutes the originating terminal's IP address for the destination address, and forwards the packets to the originating terminal.